



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/803,777	03/12/2001	Haruo Ohta	MAT-8106US	8895

7590 06/19/2003  
Lawrence E. Ashery  
Ratner & Prestia  
One Westlakes, Berwyn, Suite 301  
P. O. Box 980  
Valley Forge, PA 19482-0980

EXAMINER

RODRIGUEZ, GLENDA P

ART UNIT	PAPER NUMBER
----------	--------------

2697

DATE MAILED: 06/19/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 09/803,777	<b>Applicant(s)</b> OHTA, HARUO	
	<b>Examiner</b> Glenda P. Rodriguez	<b>Art Unit</b> 2697	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1) ☐ Responsive to communication(s) filed on \_\_\_\_.

2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4) ☒ Claim(s) 1-29 is/are pending in the application.

4a) Of the above claim(s) 9 and 14 is/are withdrawn from consideration.

5) ☐ Claim(s) \_\_\_\_ is/are allowed.

6) ☒ Claim(s) 1-29 is/are rejected.

7) ☒ Claim(s) 9 and 14 is/are objected to.

8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) ☒ All    b) ☐ Some \* c) ☐ None of:

1. ☐ Certified copies of the priority documents have been received.

2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.

3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_.

4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Claim Objections***

Claims 9 and 14 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim cannot depend from any other multiple dependent claim. See MPEP § 608.01(n). Accordingly, the claims 9 and 14 have not been further treated on the merits.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 27 and 28 are rejected under 35 U.S.C. 102(e) as being anticipated by Takahashi (6, 046, 874).

Regarding Claim 27 and 28, Takahashi teaches a data detecting apparatus for equalizing an input signal by partial response by employing at least one of partial response class 4 (PR4) and extended partial response class 4 (EPR4), and decoding the input signal, comprising:

Equalizing the input signal by PR4, and obtaining a first equalized signal (See Fig. 1, Element 30. Takahashi teach a PR4 equalizer);

Second equalizing means for equalizing the input signal by EPR4, and generating a second equalizing signal (See Fig. 1, Element 32);

Judging the signal condition of the input signal by the first equalized signal and second equalized signal, discriminating the optimum data detecting method, and generating a condition discriminating signal (See Fig. 1, Element 34 and Col. 6, Lines 22-28. Takahashi teaches a medium that chooses the signal according to which of the two methods has fewer errors. It is known in the art that if the less errors the medium detects, the better the medium is actually detecting the data.);

Obtaining the first decoded data from the first equalized signal when the condition discriminating signal judges that the first decoded data is optimum, and stopping the step of obtaining the second decoded data from the second equalized signal (Col. 6, Lines 17-28. Takahashi evaluates which equalizer is optimum (or has fewer errors). Whichever is optimum is then decoded, the other would not be considered for decoding, because it has more errors.);

Obtaining the second decoded data from the second equalized signal when the condition discriminating signal judges that the first decoded data is not optimum, and stopping the step of obtaining the first decoded data from the first equalized signal (Col. 6, Lines 17-28. Takahashi evaluates which equalizer is optimum (or has fewer errors). Whichever is optimum is then decoded, the other would not be considered for decoding, because it has more errors.).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi in view of Conway et al.(US Pat. No. 6, 522, 705).

Regarding Claims 1, 5, 19 and 23, Takahashi teaches a data separating/detecting apparatus for equalizing an input signal by partial response by

employing at least one of partial response class 4 (PR4) and extended partial response class 4 (EPR4), and decoding the input signal, comprising:

First equalizing means for equalizing the input signal by PR4, and generating a first equalized signal (See Fig. 1, Element 30. Takahashi teach a PR4 equalizer);

Second equalizing means for equalizing the input signal by EPR4, and generating a second equalizing signal (See Fig. 1, Element 32);

Condition discriminating means for discriminating the signal condition of the input signal from the first equalized signal and second equalized signal, judging the optimum data detecting method, and generating a condition discriminating signal (See Fig. 1, Element 34 and Col. 6, Lines 22-28. Takahashi teaches a medium that chooses the signal according to which of the two methods has fewer errors. It is known in the art that if the less errors the medium detects, the better the medium is actually detecting the data.);

And selecting means for selecting one of the first decoded data and the second decoded data based on the

condition discriminating signal, so as to obtain detected data (Col. 6, Lines 17-28).

However, Takahashi fail to teach that before the pr4 or epr4 data is selected, both signals are decoded (Instead, the signal is decoded after the selection is done). However, this feature is well known in the art as disclosed by Conway et al., wherein it teaches a pr4 decoder and epr4 decoder being used (Pat. No. 6, 522, 705; See Fig. 3A, 3B, and 3C, and also Col. 5, Line 61 to Col. 6, Line 53. Conway et al. teach a PR4 and EPR4 decoders being inputted for error calculations.). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to modify Takahashi's invention in order to equalize PR4 and EPR4 data and then decode it in order to process the signal completely and then verify for errors instead of verifying only the equalized signal in order for the signal to have the minimum errors possible.

Claim 2, 6, 20 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi and Conway et al. as applied to claim 1 above, and further in view of Coker et al. (US Pat. No. 5, 619, 539). Takahashi and Conway et al. teach all the limitations of Claim 1. Takahashi and Conway et al. fail to teach wherein said second equalizing means includes first filter means for converting and filtering the entered first equalized signal, and converting into an EPR4 equalized signal. However, this feature is well known in the art, as disclosed by Coker et al., wherein it teaches an PR4 signal being changed to an EPR4 signal by using a filter

(Pat. No. 5, 619, 539; See Fig. 3B. It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to modify Takahashi's invention in order for the medium to be able to change from a PR4 to an EPR4 with the use of a filter because it need to obtain a EPR4 sample in order to make the comparison between an PR4 and an EPR4 signal.

Claims 3, 4, 7, 8, 10-13, 15-18, 21, 22, 25, 26 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi and Conway et al. as applied to claim 1, 5, 19 and 23, respectively above, and further in view of Takashi et al. (US Pat. No. 6, 519, 715).

Regarding Claims 3, 7, 8, 21 and 25, Takahashi and Conway et al. teach all the limitations of Claims 1, 5, 19 and 23, respectively. Takahashi and Conway et al. fail to teach that each partial response is accompanied by an error detector and an averaging filter. However, this feature is well known in the art, as disclosed by Takashi et al., wherein it teaches a partial response class IV (or PR4) detecting method wherein it encompasses an error detector and a smoothing filter (Col. 8, Lines 50-59. It is obvious that this invention could also be applied to the EPR4 signal if a delaying signal is applied to a PR4 signal, therefore making the conversion form PR4 to EPR4.). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to modify Takahashi's invention in order for the medium to detect errors and smooth the signal in order



for the signal selecting component to be more effective when selecting the optimum signal.

Regarding Claim 4, 8, 22 and 26, Takahashi, Conway et al. and Takashi et al. teach all the limitations of Claims 3, 7, 21 and 25. Takahashi teaches a signal selecting means that depends on the amplitude of PR4 and EPR4 when reading data (Col. 7, Lines 14-20. Takahashi teaches the use of an AGC control circuit that gives the instruction to the MPU to assign which of the two partial response methods the apparatus should choose.).

Regarding Claims 10, 11, 12, 13 and 29, Takahashi, Conway et al. and Takashi et al. It is obvious to a person of ordinary skill in the art to know that if one signal is selected because of its optimum performance, the other signal is stopped because the latter is not being neither considered nor used. It is also obvious to a person of ordinary skill in the art to know that if this is done, it lowers power consumption because by selecting one of both signals, the other signal is not being used, therefore it does not need to be energized with an operating power. It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to modify Takahashi's invention in order for the medium to perform more effectively because by reducing the power, the system is more susceptible to not choose incorrectly and therefore reading more effectively.

Regarding Claims 15-18, Takahashi, Conway et al. and Takashi et al. teach all the limitations of Claims 10, 11, 12, and 13, respectively. Takahashi further

Art Unit: 2697

teaches a timing control circuit that that generates a control signal based on the discrimination (Col. 3, Line 65 to Col. 4, Line 4 and Col. 6, Line 63 to Col. 7, Line 4 and Col. 7, Lines 56-60).

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Glenda P. Rodriguez whose telephone number is 703-305-8411. The examiner can normally be reached on Monday thru Thursday: 7:00-5:00; alternate Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeffrey Hofsass can be reached on 703-305-4717. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-6743 for regular communications and 703-308-6743 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-9000.

gpr  
June 12, 2003

  
Richmond Dorvil  
Primary Examiner